PROJECT
facts

DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

SOUTHERN COMPANY SERVICES—CT-121
ADVANCED SCRUBBER DEMONSTRATION PROJECT

PRIMARY PROJECT PARTNER

Southern Company Services, Inc.
Birmingham, AL

MAIN SITE

Georgia Power Company
Plant Yates
Newnan, GA

TOTAL ESTIMATED COST

$43,074,996

COST SHARING

DOE	**$21,085,211**
Non-DOE	**$21,989,785**

Project Description

Southern Company Services, a participant in the U.S. Department of Energy's Clean Coal Technology Program, has shown that clean air doesn't necessarily mean high costs and waste disposal problems.

The utility has demonstrated a highly effective pollution-control system that removes up to 98% of the sulfur dioxide (SO_2) and more than 99% of the ash particles from flue gases emitted by a 100-megawatt unit at Georgia Power Company's Plant Yates near Newnan, Georgia. In contrast to conventional scrubbing systems, which produce a waste sludge, the clean coal technology at Plant Yates continues to produce a solid by-product with potential market value.

The advanced technology is known as the Chiyoda Thoroughbred-121 (CT-121) flue gas desulfurization process. Selected in Round II of the Clean Coal Technology Program, the project has shown utilities a new generation of flue gas cleanup systems that should be among the least expensive and most effective of a new group of state-of-the-art scrubber systems.

The technology employs a single-vessel system known as the jet bubbling reactor. The unique design of this vessel simultaneously removes very high levels of both SO_2 and particulates, and converts the resulting waste into a commercial gypsum by-product. Its glass-fiber construction eliminates the need for more costly rubber-lined steel or special alloys. The unit is extremely reliable, and is available for use more than 98% of the time, saving maintenance costs and eliminating the need for expensive backup vessels.

Program Goal

Coal represents 94% of proven U.S. fossil fuel reserves—a resource far greater than the world's supply of oil. The goal of DOE's Clean Coal Technology Program is to facilitate commercialization of advanced coal-based technologies and develop opportunities for economic growth and export. The program also seeks to demonstrate how the efficiency and environmental performance of coal-fired power-generating systems can be increased.

By successfully using an advanced flue gas desulfurization process, the CT-121 Advanced Scrubber demonstration project is providing a compact, high-efficiency, and low-cost system for cleaning air pollutants from coal combustion gases.

Project Partners

GEORGIA POWER COMPANY
Newnan, GA
(host utility)

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, CA
(cofunding)

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CONTACT POINTS

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Project Benefits

The CT-121 Advanced Scrubber has shown how advanced technology can be used to ensure that today's coal-fired power plants will be able to meet the most stringent environmental controls—without high costs to consumers or additional problems disposing of solid waste.

At Georgia Power Company's Plant Yates, this innovative project has:

- Achieved extremely high levels of simultaneous SO_2 and particulate control.
- Produced a commercial gypsum by-product that is saleable for use in wallboard, in cement, and as a soil ameliorant for agriculture.
- Previewed a technology that will be attractive for both new and retrofit utility applications as a cost-effective yet highly reliable alternative to conventional processes.
- Established a new trend in construction with the on-site fabrication of glass-fiber-reinforced plastic vessels for major equipment, eliminating the need for rubber-lined carbon steel or other costly alloy materials for construction.
- Provided a boost to the local economy by employing more than 100 construction workers.

The CT-121 system offers the Nation's utilities a new option for pollution control—one that delivers clean air without the high costs that come with the more complex international applications and the less reliable systems in use today.

When brought to its full commercial potential, the CT-121 and other emerging clean coal technologies will result in both a better environment and a stronger economy.

Cost Profile (Dollars in Millions)

	Prior Investment	FY95	FY96	FY97	Future Funds
Department of Energy *	$17.2	$0.8	$0.1	—	$3.0
Private Sector Partners	$18	$0.8	$0.1	—	$3.0

* Appropriated Funding

Key Milestones